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Iterative solution methods for mixed equilibrium problems and variational inequalities with non-smooth functions

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Abstract

In this paper, a general class of mixed equilibrium problems involving non - differentiable functions is considered. We describe some recent advances in the theory and solution methods for such mixed equilibrium and variational inequality problems under monotonicity type assumptions. The methods are based on descent and combined relaxation approaches and involve different linesearch procedures. As a result, they do not require a priori information on the problem. Their numerical implementation is further simplified by making use of specific features of the problems, in particular, their decomposable structure. Then methods' parts can be executed in parallel, making them suitable for rather large problems. Some additional examples of applications are also presented.

Keywords

Combined relaxation methods, Descent methods, Equilibrium problem, Iterative solution methods, Mixed variational inequalities, Nash equilibrium problem, Non - differentiable functions